Nutrition News

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LOOKING AHEAD WITH NUTRITION RESEARCH

By

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Surely we seem justified in looking ahead with confidence to the contributions that scientific food research will make to human betterment, to economic returns, and even to hope for world peace.

As a background for looking into the future, we might note some of the traveled and the yet untraveled basic research on milk. The significance of such research stems from the evidence that in areas where dairy farming is favored in reasonable degree, the return, per acre, in terms of food, agricultural economy, and human health, is greatest from production of milk. Milk constitutes the first line of defense in planning food supplies that will conserve our natural resources and the health of children and adults.

An illustration of the complexity of milk and its contributions appears in the 274 items used in comparing human, goat, and cow milk in the bulletin on milk composition prepared by the National Research Council. Yet only about 45 nutrients are recognized today as essential for human nutrition. Just one generation of scientists has been studying foods since the classic discovery that alcohol could extract from dry milk something of organic origin and essential for animal growth, but separate from milk's recognized content of protein, sugar, fat, and ash.

As recently as last year it was discovered that omission of only one of the so-called minor nutrients in milk (choline) from the diets of growing animals causes abnormal fat globules to form in the liver and kidneys within 24 hours. If the deficiency is continued for only a few days, followed by return to a full diet, degenerative changes are started that cause, early in adult life, a diseased condition characterized by high blood pressure, enlarged heart, and hardening of the arteries. The changes resemble the picture observed often in our contemporary adult population. No one can be sure at present how significant this discovery will be in improving human health.

Yet choline shows up again in normal functioning of nerve cells, kidney tissue, liver, muscle, and glandular tissues. It is directly concerned with normal metabolism of proteins and fats. It has just been discovered to overlap with the functioning of the latest member of the vitamin B complex, B_{12}. It links up with the functioning of the trace mineral element, cobalt, in producing red blood cells, in forming normal bone marrow, and in protection of the brain and stomach.

These discoveries on the reach of choline into all parts of the body illustrate the fact that nutrition cannot be divorced from basic research to discover how living organisms function. Out of multiple discoveries come the practical gains of industry and progressively higher standards for mankind.

The World Food Supply

Research and its applications in food production, distribution, and use for human betterment is one of the most powerful weapons against the risk of war. A hungry people are not peace-minded.

Note these illustrations of what is being done and of what should be done more intensively to apply basic information in practical situations:

1. The Rockefeller Foundation reports experiments to increase the yield of corn in Mexican agriculture. This is meaning more food and less poverty for our neighbors. A parallel study in human nutrition is underway to reach the entire Latin American area.
2. Within four years, the development of frozen orange juice has raised the economic standing of the citrus industry and made more widely available an important protective food.
3. The United States Department of Agriculture has spearheaded crossing of one of our major breeds of dairy cattle with Brahman stock from India to obtain cows for good milk production and tolerance of our southern climate. Striking also is the progress made in increasing the yield of corn in the South. The average increase per acre in seven states is 50 percent within four years.
4. Crossbreeding of tomatoes at a university experiment station promises a new variety with vitamin C content to equal oranges and enough vitamin A content to meet our national requirement at present levels of consumption.

Dr. King

We can look forward optimistically to accomplishments in the conservation of our nutritional resources and the development of new and superior foods when scientists today have such advantages as the following:

1. An advancing science of nutrition, so we may expect one day to have the compositions and functions of food measured in terms of all useful nutrients.
2. A rapidly growing science of genetics to guide in deliberately designing raw products to needs.
3. A tremendous food outlet in the United States alone, with more than two-thirds of the world's people still regarded as underfed.
4. An opportunity to process and transport foods in revolutionary ways.

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Glances AT NUTRITION RESEARCH

Scientific investigation of human food needs reveals that milk is important as a source of essential nutrients for persons of all ages. Recently reported evidence for this fact is summarized below.

School Lunches—Children eating school lunches which fit the Standard Lunch Pattern of the National School Lunch Program have better diets than children not receiving these benefits. This is especially true with respect to calcium, ascorbic acid, and vitamin A. Milk and milk products, tomatoes and citrus fruits, and green and yellow vegetables are used more liberally in school lunches than in home meals and contribute nutrients otherwise apt to be low in children's diets. These conclusions are the results of a study of the nutritive value of 70 meals from 15 schools and seven day food consumption records of children receiving and not receiving the lunches. In addition, it was found that the milk in the school lunch supplies most of the calcium and a major portion of the protein and riboflavin of these meals. Children refusing milk are apt to have intakes of these nutrients below the Recommended Daily Dietary Allowances.

—Am. J. Public Health 40:1096 (Sept.) 1950.

Milk in School Lunches — Further emphasis on the importance of milk in the school lunch program resulted from a study of the nutritional adequacy, cost, and acceptability of lunches in an Iowa School Lunch Program. Milk was found to supply a greater amount of more nutrients than did any other food included in the menus. It was also found to be highly acceptable to the children. There was a 100 percent acceptance of milk by individual groups more than half of the time. There was never less than a 90 percent acceptance of milk by any group.

—J. Am. Diet. Assn. 26:654 (Sept.) 1950.

Nutrition of Older Women—Milk, or its equivalent in milk products, is the one food which gives the greatest factor of safety in diets of 1,600 calories or less. This fact was revealed by a detailed laboratory analysis of the diets and metabolism of eighteen women between the ages of 48 and 77 years. Their daily food intake frequently fell below 1,600 calories. One pint of milk per day increased the intake of protein, calcium, phosphorus, and several vitamins to the point where the subjects on the low energy intake did not show a loss of these nutrients.

—Am. J. Public Health 40:1101 (Sept.) 1950.

Dental Caries—A study of the teeth of almost 10,000 Norwegian children showed a 50 to 80 percent decrease in the incidence of tooth decay during and for two years after the war with a subsequent rise taking place later. The authors of a recently published analysis of the facts point out that the wartime diets supplied nutrients essential for the development of sound teeth as pregnant and nursing mothers and their children were supplied whole milk and other protective foods. They tentatively conclude that: the early decrease in caries frequency may have been caused by the drastic reduction of refined carbohydrates in the diet due to war rationing; the continued reduction in caries after these foods were again available may be attributed to a higher resistance of the teeth due to the special wartime diet; the increase in caries now evident may indicate environmental factors have overwhelmed this resistance.

—J. Am. Diet. Assn. 26:673 (Sept.) 1950.

Dr. King

Dr. King has been scientific director of the Nutrition Foundation since 1942. The Foundation was incorporated by leaders in the food industry for support of basic research and education in the science of nutrition. Dr. King also is professor of chemistry, Columbia University. He has actively applied his knowledge of chemistry and nutrition through many organizations, as Food and Nutrition Board, National Research Council; U. S. Public Health Service; American Public Health Association.

School Lunch Records

A study reveals that the numbers of children taking a complete lunch in school is closely associated with the cost of the lunch. A low priced lunch is of great importance for top participation. As the price increases participation decreases. Records were studied of six state school lunch agencies by Food Distribution Programs Branch, Production and Marketing Administration, U. S. Department of Agriculture.

Nutrition and Dentistry

Dentists of Iowa held an outstanding one-day program on nutrition and dental health in October. The purpose was to give dentists basic nutritional information in relation to dental health, to stimulate interest in nutrition, and to indicate ways the dentist can teach nutrition in his practice. This first nutrition institute for Iowa dentists demonstrates the mounting professional interest in the correlation between these two fields of health.

DIETARY CONSULTATION SERVICE TO INSTITUTIONS

By Jane Hartman, Consultant Dietitian
Department of Health, State of Maryland

Editor's Note: Homes for groups of children may share in the dietary consultation service to institutions which health departments increasingly are offering. Miss Hartman gives a glimpse of the acceptance and potential values which such a program offers.

It may be a prejudiced opinion, but the kitchen truly seems to be the heart of the Home! Especially if this Home is where children live and grow.

This is the story of a Maryland institution. About 50 children, aged 4 to 18, live here. The sign on the entrance includes the word "Orphan," but one soon forgets that sad connotation as the play equipment and swimming pool loom into view.

The superintendent and his wife accepted dietary consultation from the State Health Department warily. Their children had few illnesses, appeared healthy and vigorous. The diet had never been evaluated. The superintendent thought the food was adequate.

A United States Public Health Service Nutrition Unit was available to perform nutritional status studies, which included biochemical, physical, and dietary appraisals. On a Sunday afternoon, the members of the nutrition unit met the children and the staff. A food film added interest. Then the plan was explained to the children. The next day they were examined and fingers were jabbed. There was much discussion of whether "my blood is better than your blood."

The nutritionist or consultant dietitian ate with the children for seven days. Both spent much time in the kitchen studying the food service—meal planning, purchasing, preparation, equipment, personnel, storage, waste, housekeeping, and sanitation.

Some evenings were spent around the television set. Boys and girls crunched apples. Once during the week candy was passed. The amount and kind of food eaten by the children each day was recorded by the nutritionist who checked these records on the basis of food groups and by calculations of specific nutrients.

Physical signs, observed in the children, which were thought to be related to malnutrition were tabulated. Biochemical findings showed a number of low values for vitamin A. Most dramatic were the numbers of children with low ascorbic acid values.

Dietary findings revealed that intake of green and yellow vegetables, lean meats, and eggs fell slightly below amounts recommended by the Bureau of Human Nutrition and Home Economics; ascorbic acid-rich-foods fell much below. Milk, other fruits and vegetables, whole-grain and/or enriched bread and cereals, and butter and other fats were being used in amounts usually recommended.

Calculations of nutrients in the diets showed that calories, protein, iron, niacin, and ascorbic acid fell below the Recommended Daily Allowances of the National Research Council.

The report in its entirety was presented to the superintendent and a physician board member. Discussion re-emphasized to the examiners the need for nutrition education for the superintendent and staff. When more citrus fruits and ascorbic acid foods were suggested, the superintendent remarked, "Why our children eat more than an apple a day!"

Practical recommendations for improvement of the diet as a whole were made. Among these were ways to use more cheese and milk-egg dishes in meals, along with dried beans, peanut butter, and meat to bring up the protein in the diet in both amount and quality. Continuing consultation is helping to interpret recommendations.

In other situations, quite different improvements in feeding may be needed to bring opportunity for the best possible development of children. A caution in consultation service is that it not be spread too thin to permit careful study nor lose that value which comes only from intensive and prolonged effort. This paves the way for other nutrition services which may be used in a community and, increasingly, leads to the placement of qualified dietitians in more of the larger institutions.

THE EXPANDING ROLE OF THE SCHOOL LUNCH PROGRAM

By Betsy W. Curtis, Supervisor of Lunchrooms
The Board of Education, Cincinnati, Ohio

School lunchroom managers seem to be in agreement in their understanding of the broadening aim of the school lunch during its years of development. In the beginning, the aim was mainly to feed the needy and undernourished, either gratuitously or at a very low price. Now the aim is to give all children an adequate noon lunch at a price they can afford and in so doing to aid realistically in teaching children good food practices. The school lunch program should serve as the educational vehicle for developing right food habits which follow children through life.

Achievement of this goal relies heavily on the understandings of the objectives and the problems by parents, school officials, and teachers, who in turn influence the attitudes of children as lunchroom patrons. Mutual recognition of practical problems of operation is essential, for that phrase "at a price they can afford" gives rise to steadily mounting obstacles.

To plan a well-balanced lunch yet to keep the price down to the child's level always has been difficult. Now, the pattern of the school lunch has broadened until it is a meal, supplying one-fourth to one-third of the day's food needs. It can no longer be produced at a price within the reach of all children and be self-sustaining. School lunchrooms which have the aid of the Federal Program are fortunate.

Much publicity is required in order that parents, faculty, and school officials may realize the problems of cost present in operating a school food service. For several reasons, it cannot be economical as compared with commercial operations. It is an interrupted operation, with long week ends and holidays which interrupt the best buying practices in perishables and use of leftovers. It is no longer a part-time job for workers. It is full-time employment at wages commensurate with those paid in other food industries and with the same considerations as other non-professional employees of a Board of Education. There is a payroll for school holidays but no income from

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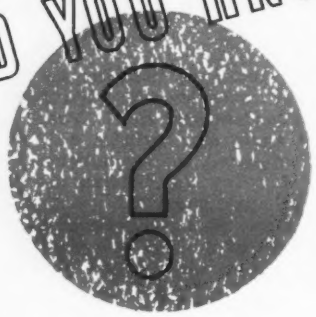
DID YOU KNOW



—that a prominent veterinarian says that cows often benefit from dental attention and give better milk yield?

—that it is common in Mexico, in the preparation of Tortillas, to soak the corn in a lime solution, thus introducing calcium into the diet?

—that Swedish dairies have succeeded in making powdered butter?

—that a milk derivative called Caslen is used to cushion some mattresses?

—that the per capita consumption of cheese in the United States has almost doubled since 1918?

—that farm animals are better fed than people, according to a nutritional chemist?

—that in Hawaii between 19 and 20 quarts of ice cream are consumed a year for every citizen in the Islands, a better record than on our mainland?

—that a nomadic Indian tribe of Bolivia was so dominated by the need for food that skills, arts, and religion were either lost or never learned?

THINGS YOU'LL LIKE TO READ

Nutrition and Diet Therapy—10th Edition. F. T. Proudfit and C. H. Robinson. The Macmillan Company: New York. 1950. $4.00.

This edition is expanded for use as a teaching guide with "Manual for Teaching Dietetics to Student Nurses," American Dietetic Association. New chapters and charts are included and many others enlarged upon. Included are aids for teaching student nurses, charts, extensive references.

Manual for School and Institutional Lunchrooms — Ohio Dietetic Association. Versailles Policy Publishing Co.: Versailles, Ohio. Revised 1949. $2.00.

Directed first to school lunchroom managers, this excellent handbook has use in all institutions. A committee has revised it to include new facts and foods. "Educational Possibilities" suggests values to be attained. Other chapters discuss Grade A Lunch, Selection and Preparation, Services, Personnel, Equipment, Location, Purchasing, Accounting, Sanitation, Recipes.

Recent publications of Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, U. S. Department of Agriculture: Washington, D.C. 1950.

Recipes for Quantity Service. PA112. This is first in a series of leaflets of quantity recipes featuring widely available foods. Recipes were tested for practicability, sales appeal, acceptance. Yields are 25, 50, 100 portions. **Improved Bread Formulas for School Lunch, Institutional and Hospital Use.** PA106. Five bread formulas with enriched flour and 6 to 10% nonfat dry milk were developed and tested—white, soy, soywheat germ, raisin, and wholewheat. Estimated nutrient content is tabulated and compared with breads commonly used. **Composition of Foods —Raw, Processed, Prepared.** Ag. Handbook No. 8. 35 cents. Data on proximate composition, mineral and vitamin content of foods: 100 grams, edible portion; 1 pound, as purchased; household units. Foods are alphabetized and numbered uniformly in all tables.

THE EXPANDING ROLE OF THE SCHOOL LUNCH PROGRAM

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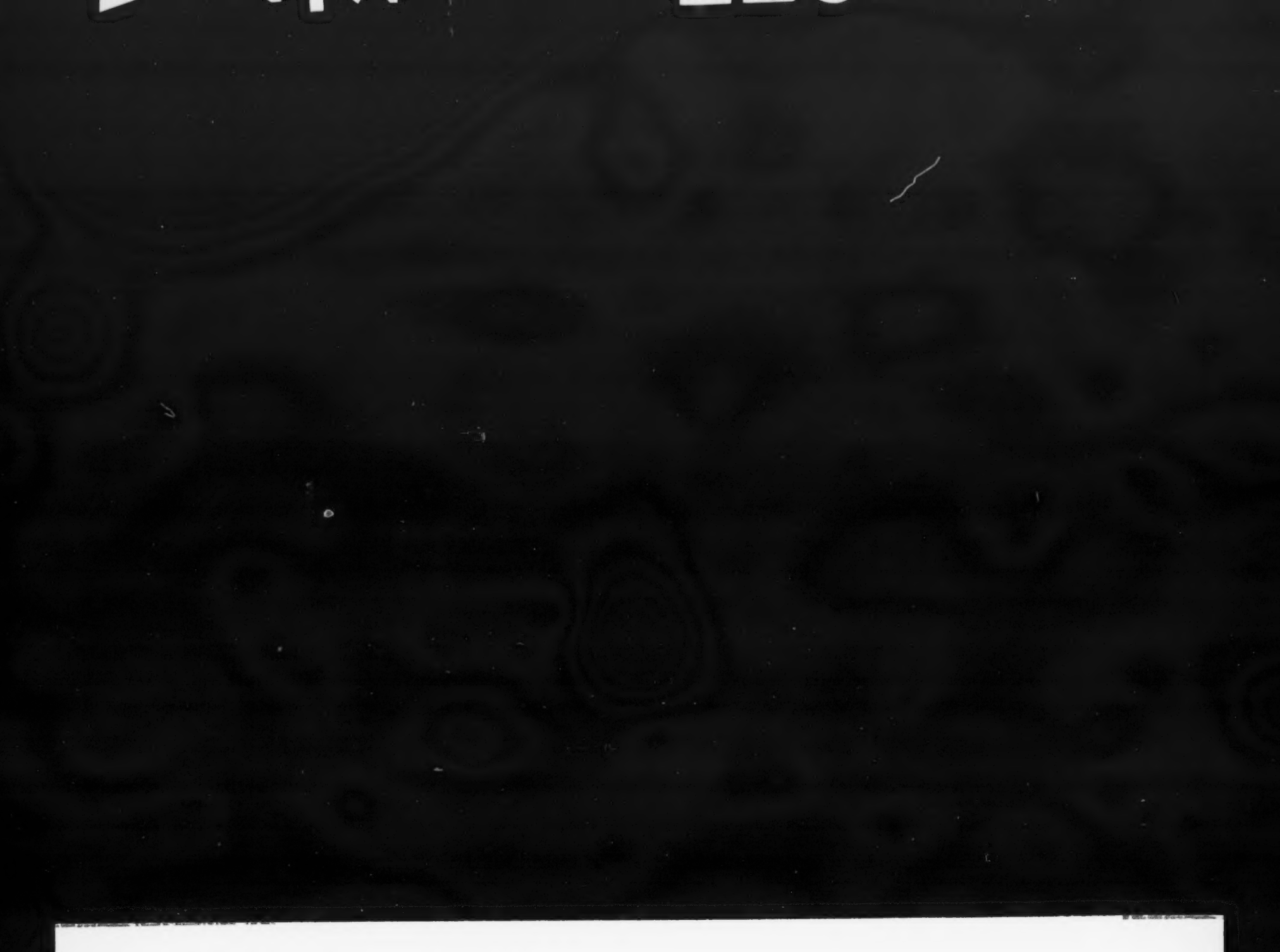
the lunchroom. Lunchroom patronage drops when there is a school activity for money; weather and sickness also influence attendance. But the staff must be maintained. Rising costs make varied selection of foods almost out of reach. It is low overhead and no profit that make school food service even possible. All these factors should be better understood by the community and faculty.

Food habits present less tangible but continuous problems, especially where the membership of the school represents a cross section of people with varied characteristic patterns of eating. Food habits of children are influenced by the foods eaten in the homes: likes and dislikes of parents, real and imaginary, and nationality influences.

Parent Education

Such problems lead directly to the educational feature of the school lunch program. It must include parent education in the broadest sense, so parents will understand that the menu cannot be fashioned around an individual child's likes and dislikes; that it is quite as necessary for the child to acquire an acquaintance with and taste for different foods as to acquire a taste for good books, pictures, and many other things. If the school plate lunch has been planned carefully, if it is well prepared, if it is displayed and merchandised well, it has gone far in influencing the child in selection and in showing an example of what a lunch should include.

The school faculty, too, should understand the real purpose of the school lunch and cooperate in making it serve in a total educational program. Educating children in food selection largely should be in the hands of teachers, and should be correlated carefully to promote nutritional angles, social attitudes, and education of likes. The lunchroom manager can assist in preparing a course of study. She can create in the lunchroom the right standards in preparation, in combinations, and in the sale of nutritious foods. School food service must be an integrated part of the school system to fulfill its large educational role.